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[Continued on next page]

(54) Title: TWO STAGE DETECTION FOR PHOTOGRAPHIC EYE ARTIFACTS

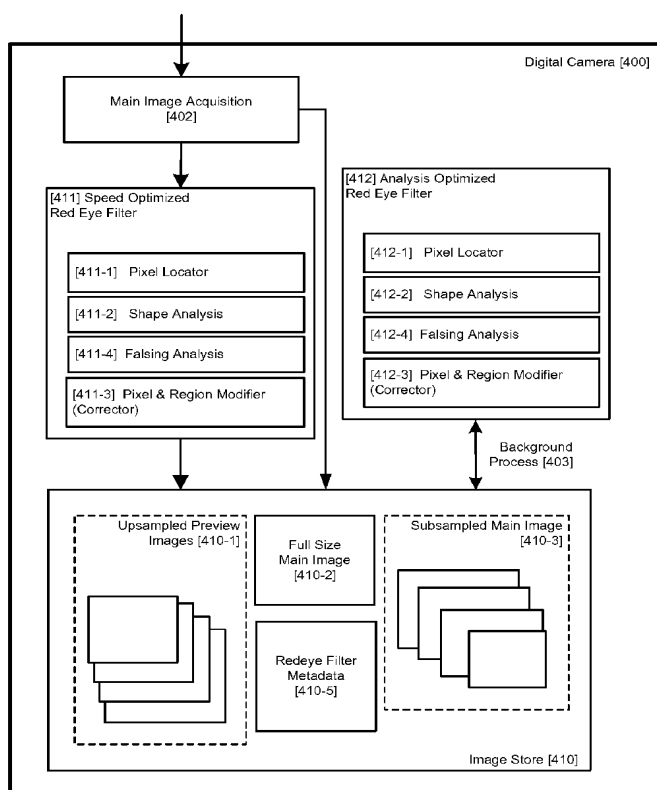


Figure 2(a)

(57) Abstract: The detection of red-eye defects is enhanced in digital images for embedded image acquisition and processing systems. A two-stage redeye filtering system includes a speed optimized filter that performs initial segmentation of candidate redeye regions and optionally applies a speed-optimized set of falsing/verification filters to determine a first set of confirmed redeye regions for correction. Some of the candidate regions which are rejected during the first stage are recorded and re-analyzed during a second stage by an alternative set of analysis-optimized filters to determine a second set of confirmed redeye regions.



MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US (patent), UZ, VC, VN, ZA, ZM, ZW.

FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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# INTERNATIONAL SEARCH REPORT

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PCT/US 08/55864

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G03B 15/03 (2008.04)

USPC - 396/158

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - G03B 15/03 (2008.04)

USPC - 396/158

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
348/333.02, 333.12; 396/18, 287, 296; 382/117, 164, 275; 345/593, 618

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
WEST (US Patents, US Pre-grant Publications, EPO Abstracts, JPO Abstracts); Googal Scholar - computer, digital, pixel, digitize, camera, picture, photo, image, photography, red eye, correct, fix, amend, adjust, verify, confirm, validate, falsing, speed, fast, quick, swift, rapid, two step, two stage, two part

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/0276481 A1 (ENOMOTO) 15 December 2005 (15.12.2005), fig 1-3; para [0002], [0009]-[0042], [0052]-[0059], [0069]-[0074], [0099]-[0105].	1-31
A	US 2006/0204052 A1 (YOKOUCHI) 14 September 2006 (14.09.2006), abstract; fig 1, 16.	1, 6, 12, 17, 23, 28

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Further documents are listed in the continuation of Box C.

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\* Special categories of cited documents:

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"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

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